WSDOT

South Central Region

Route Development Plan

STATE ROUTE 129

From the Oregon border (MP 0.00)

To 24th Avenue (MP 39.92)

Washington State Department of Transportation

South Central Region, Planning Office

P.O. Box 12560

Yakima, Washington 98909-2560

Route Development Plan

State Route 129

Oregon border to 24th Avenue

MP 0.00 to MP 39.92

April 2002

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Washington State Department of Transportation

South Central Region

ROUTE DEVELOPMENT PLAN

STATE ROUTE 129: MP 0.00 TO MP 39.92

Approved By:

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Concurrence:

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Vision Statement

Planning for an efficient network of transportation facilities is vital to moving people and goods, but must be balanced with the preservation of this region's wealth of natural, scenic, and recreational areas.

RDP Summary

This *Route Development Plan (RDP)* is a twenty-year plan that enables WSDOT to make informed decisions on future needs. It presents a detailed plan for the southern section of State Route 129 (SR 129). The study area begins at the Oregon border at MP 0.00, and ends at 24th Avenue (south of Clarkston) at MP 39.92.

SR 129 is the major north-south route in Southeastern Washington's Asotin County. It serves the communities of Clarkston, Asotin, and Anatone and provides access between Southeastern Washington and Eastern Oregon.

SR 129 operates as a two-lane Minor Arterial and has been designated as a Scenic and Recreational Highway. A significant volume of trucks on this route haul lumber, livestock, and grain products to Clarkston area ports.

The Level of Service (LOS) analysis results show that the SR 129 route will have an acceptable congestion level throughout the twenty-year planning period. WSDOT strives to maintain a LOS C on rural highways and a LOS D in urban areas.

RDP Development

This *RDP* was created with the help of an internal Stakeholder Steering Committee including representation from various South Central Region offices. The Outside Stakeholders that were invited to become involved in the development of this *RDP* included the Palouse RTPO, Washington State Parks and Recreation, and the general public. The *RDP* will be updated periodically to keep pace with changing transportation needs and existing conditions.

Implementation of the *RDP*

The *RDP* identifies proposed improvements that support congestion relief, economic initiatives, and safety requirements for the SR 129 route during the next 20 years. The recommended improvements for the SR 129 route include the following:

- Add intermittent passing lane or two-way left turn lane north of Asotin where feasible (MP 36.62 – MP 39.57).
- Develop a Scenic & Recreational Corridor Management Plan for this route.
- Conduct a feasibility study to re-route SR129 in Asotin with a Cleveland Street by-pass/one-way couplet (MP 35.73 – MP 36.57).
- Replace guardrail (MP 0.0 – MP 22.82) and retrofit bridge rail at Grande Ronde River Crossing (MP 4.33).
- Widen shoulders to allow vehicles to pull off SR 129 at strategic locations along the Rattlesnake Grade (MP 0.0 - MP 13.75).

Due to the numerous geometric and environmental constraints associated with this section of SR 129, the South Central Region is recommending that any improvement work done on this section of SR 129 be designed to **Modified Design Level standards,** with a minimum of eleven feet wide travel lanes and paved shoulders of three feet minimum width.

Chapter 1 Introduction

Vision Statement

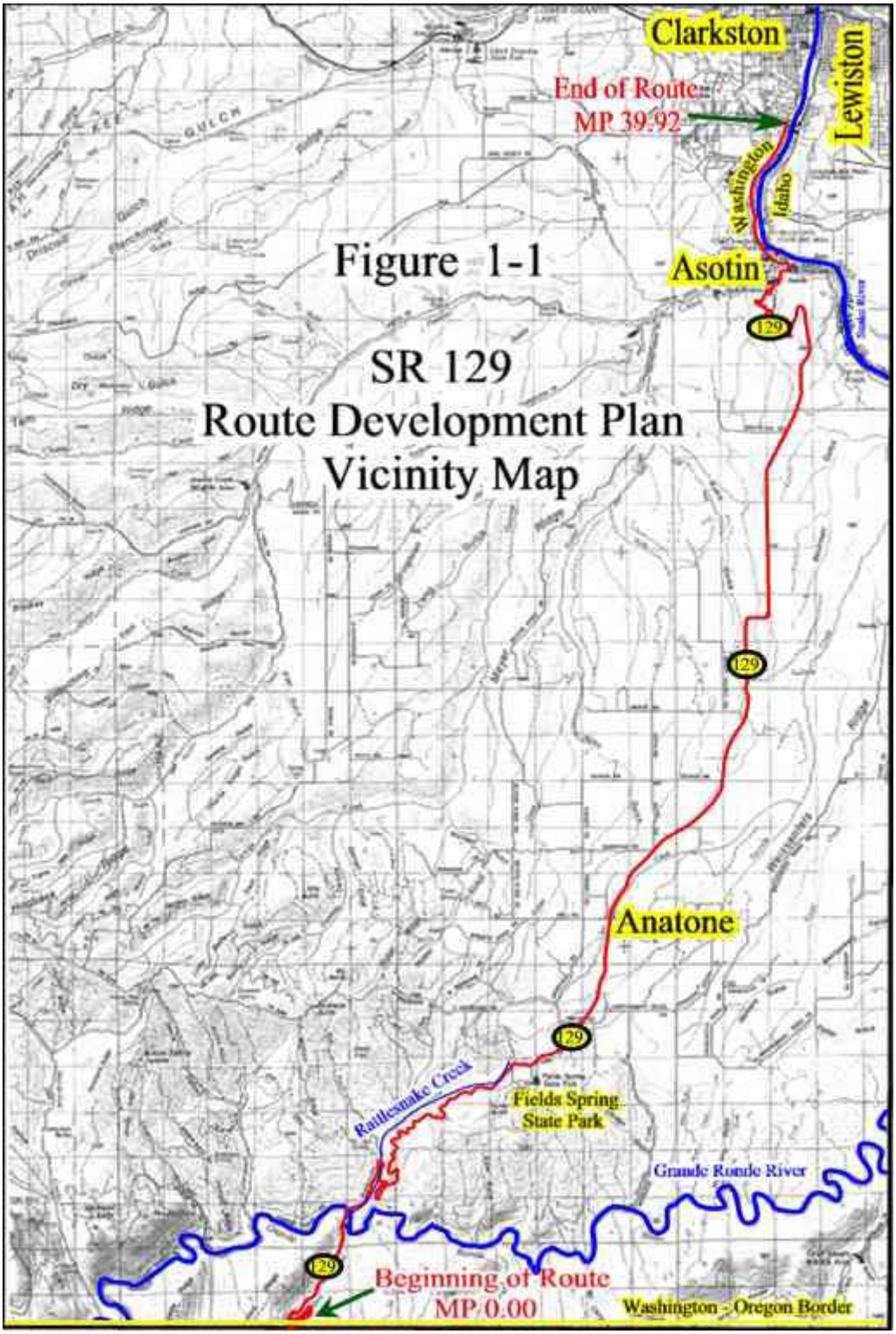
Vision Statement

Planning for an efficient network of transportation facilities is vital to moving people and goods, but must be balanced with the preservation of this region's wealth of natural, scenic, and recreational areas.

This *Route Development Plan (RDP)* enables WSDOT to make informed decisions on the future needs for State Route 129 (SR 129). Interested users and affected jurisdictions in the SR 129 study area have come together with WSDOT to create the long-range vision for safety and capacity improvements to the route. This plan will be used to provide further detail to the vision of Washington's Transportation Plan, in particular the 2003-2022 *WSDOT State Highway System Plan (HSP)* element.

RDP Summary

This *RDP* is a twenty-year plan that describes the future development of the section of SR 129 that begins at the Oregon border (MP 0.00) and ends at 24th Avenue, south of Clarkston (MP 39.92), see Figure 1-1, *SR 129 Route Development Plan Vicinity Map*. A detailed description of the existing facility is provided as a basis for the present and projected operating conditions of this section of SR 129. Improvement strategies are recommended that balance adequate operations with the recreational importance and environmental qualities of the transportation system in the SR 129 corridor. These recommended improvements are important to assure adequate and safe operation of SR 129 in the future while preserving, to the greatest extent possible, the splendor and natural setting of the corridor.


Clarkston
End of Route
MP 39.92
Lewiston
Washington
Idaho
Figure 1-1
SR 129
Route Development Plan
Vicinity Map
Asotin
129
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MP 0.00
Washington - Oregon Border

Route Location and Study Area

SR 129 is a north-south route that travels through the Blue Mountains and the Palouse tablelands. The highway passes through two communities, the unincorporated community of Anatone (MP 17.71) and the City of Asotin (MP 35.69). The route ends in the City of Clarkston at a junction with US 12(MP 42.42). The study area, shown in Figure 1-1 *SR 129 Route Development Plan Vicinity Map*, begins in southeast Washington at the Oregon border (MP 0.00) and ends just south of the City of Clarkston (MP 39.92) [1].

Travel Type

The character of traffic in the study area is mainly **interregional and recreational** travel. This section is a Farm-to-Market road and is used to haul primarily timber, grain, and livestock products. Logging trucks travel the length of the route year round. Grain is shipped from local farms to the ports during the harvest season.

SR 129 at Rattlesnake Creek Grade

Recreational destinations include the Fields Spring Washington State Park (MP 13.42), the Umatilla National Forest, Hells Canyon National Recreation Area, Asotin County Aquatic Center, and the mountainous public lands for outdoor recreation enthusiasts. Recreational trip purposes include boating, hiking, fishing, hunting, paragliding, horseback riding, camping and snow sports. The Snake River Bikeway connects Clarkston and Asotin and provides a place to jog, bicycle, or walk along a portion of the SR 129 corridor.

[1] WSDOT TRIPS State Highway Log

Continuity

To the south of the study area limits at the Oregon border (MP 0.00), SR 129 becomes Oregon State Route 3 (SR 3). At this point SR 3 continues for about 64 miles through mountainous terrain, intersecting with Oregon Route 82 at Enterprise, crossing the Wallowa-Whitman National Forest and terminating at the Wallowa Lake State Park. This section of highway has similar route classifications and existing conditions.

To the north of the study limits at 24th Avenue (MP 39.92), SR 129 continues as an Urban Minor Arterial for 2.63 miles through level terrain before it terminates at its intersection with US 12 (MP 42.55). This section of SR 129 is mainly within the city limits of Clarkston. The roadside classification changes from semi-urban to urban at MP 41.80. The access management classification also changes from class 4 to class 5 at MP 41.17. The existing characteristics of the roadway change from a two-lane roadway to a four-lane roadway at MP 42.19. The shoulders change from three feet of asphalt to about ten feet of concrete shoulders and curb at MP 41.28. Traffic volumes almost double from 24th Avenue (MP 39.92) to the Junction with US 12 (MP 42.55) with 5,800 Annual Average Daily Traffic (AADT[2]) at 24th Avenue and 11,000 AADT at US 12.

WSDOT's SCR Construction Project Office (Paul Gonseth, P.E.) completed a Corridor Study for SR 129 from MP 39.92 to MP 42.55 on July 31, 2001. The Corridor Study found that most of the accidents in the urban portion of SR 129 are related to traffic movement and traffic flow problems. The study recommended that the Palouse Regional Transportation Planning Organization (RTPO) evaluate the overall transportation system within Clarkston and coordinate their efforts with WSDOT to improve the whole system. Otherwise, if improvements were made to SR 129 alone, the accidents may shift from SR 129 to local roads. The study also recommended short-term improvements, including improved signalization, adding a left turn lane at Chestnut Street, widening the right turn lane at 6th Street, and widening the right turn lane at 5th Street.

Urban Network

The SR 129 route is utilized by several transportation modes and provides access to other types of transportation facilities including marine ports, non-motorized facilities, and public transportation services. These transportation facilities are described below.

Marine Ports

There are six marine ports that operate on the Snake and Columbia rivers, including the Ports of Clarkston, Lewiston, and Wilma. Approximately 4,375,000 tons of goods, mostly grain, travel down river, and approximately 205,000 tons travel up river, mostly oil products and fertilizers[3]. If the movement of goods were shifted from barge to long-haul trucks there would be a substantial increase in traffic on SR 129[4].

[2] Year 2000 AADT - WSDOT TRIPS System Traffic Count History Report.
[3] Snake River Drawdown, Transportation Impact and Alternative Analysis.
[4] Truck Traffic Impact Analysis of Snake River Drawdown, WSDOT SCR.

Non-motorized Facilities

The Snake River Bikeway is a separated green belt trail for bicyclists and pedestrians. It runs parallel with SR 129 and the Snake River between Swallows Park (just south of the City of Clarkston at MP 39.92) and the City of Asotin (MP 36.72). This facility increases the safety of bicyclists and pedestrians that may otherwise utilize the SR 129 roadway. It also adds to the intrinsic qualities of the SR 129 corridor.

Public Transportation

There are two public transportation programs for Asotin County residents that are administered by Valley Transit, an agency based in Lewiston Idaho. One of Valley Transit's services provides urban area night and weekend service, linking persons that need transportation in Asotin and Clarkston to jobs and services in Lewiston Idaho. Valley Transit also provides the Coast Travel Manager Program (COAST), a ride share program that provides low-income workers with low cost commute options in Asotin, Garfield, and Whitman counties.

Land Use and Zoning

Asotin County has experienced population growth and land use changes over the past decade. These changes have taken place mainly in the Clarkston area, due to the employment opportunities available in the cities of Lewiston and Clarkston. The Ports of Clarkston, Lewiston, and Wilma have created many jobs over the past few decades. Large firms, such as the Potlach Corporation and Blount Inc., have also consistently provided jobs for the area[5].

The increases in population in Asotin County and its communities during the past decade, and the estimated number of housing units are shown in Table 2-1.

[5] PRTPO Regional Transportation Plan, 6/1995.

TABLE 2-1 Population and Housing[6]				
Area	**Population**			**Housing Units[7]**
	1990	**2000**	**% Increase**	**1995**
Asotin County	17,605	20,000	13.6%	7,668
Unincorporated	9,871	12,005	21.6%	4,207
Incorporated	7,734	7,995	3.4%	3,461
City of Asotin	981	1,105	12.6%	411
City of Clarkston	6,753	6,890	2.0%	3,050

Employment data indicates that the labor force has increased over the past two decades in Asotin County whereas the unemployment rate has decreased. These changes are shown in Table 2-2.

TABLE 2-2 Asotin County Employment[8]				
Area	**1980**	**1990**	**2000**	**% Increase/ Decrease**
Labor Force	8,630	9,370	11,800	+36.7%
Unemployment	9.3%	5.0%	4.6%	-50.5%

The different land use zones along the SR 129 route are shown in Table 2-3. The activities allowed in these land use zones are described further in Appendix B. Land Use Zones.

[6] U.S. Census Bureau 2000
[7] PRTPO Regional Transportation Plan, 6/1995.
[8] Washington State Employment Security Department, Resident Civilian labor Force and Employment in Asotin County, 4/1/2001

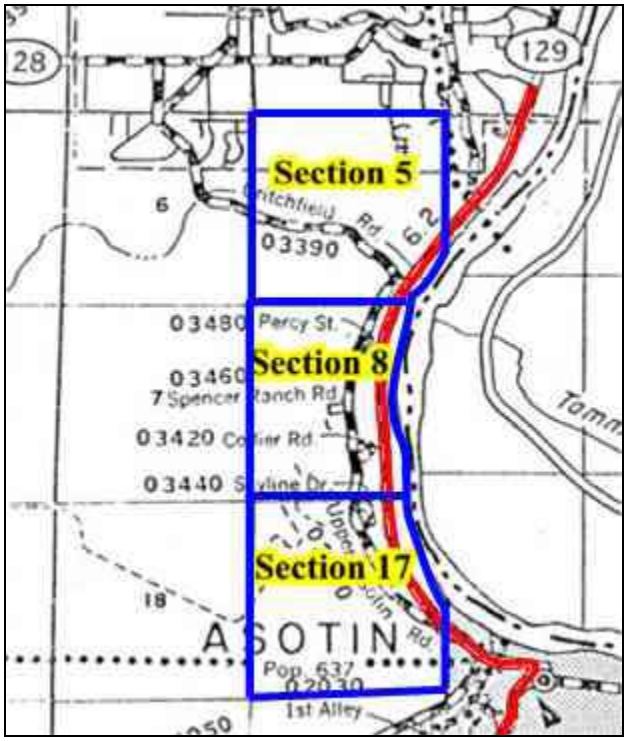
TABLE 2-3 Land Use Zones of SR 129 Route		
Segment Mile Posts	Segment Vicinity	Land Use Zone[9]
0.00 – 4.00	Oregon border to south of Grande Ronde River	Agricultural
4.00 – 5.00	Grande Ronde River vicinity	Rural Residential
5.00 – 13.42	North of Grande Ronde River to Fields' Spring State Park	Agricultural
13.42 – 13.75	Fields' Spring State Park boundary	Recreation & Open Space
13.75 – 17.00	Park Rd. to South of Anatone	Rural Residential
17.00 – 18.00	Anatone (Sections 26 & 35)	Agricultural/Transition
18.00 – 32.45	North of Anatone to South of steep grade	Agricultural
32.45 – 35.69	Steep grade to Asotin	Agricultural/Transition
35.69 – 36.95	City of Asotin	Low/Medium Density
36.95 – 39.92	Asotin Creek Rd. to 24th St.	Recreation & Open Space

The Palouse Regional Transportation Planning Organization (PRTPO) developed growth assumptions for the next twenty years by considering past growth and population trends. They projected that the residential areas in parts of Sections 5, 8, and 17 in Township 10N of Range 46E should incur up to moderate growth over the next twenty years. SR 129 travels through these growth areas between MP 36.6 and MP 38.6 (Upper Asotin Road to 13th Street), as shown in Figure 2-1.

[9] Asotin County Zoning Ordinance. Adopted: April, 2001.

Figure 2-1 Residential Growth Areas

SR 129 Route



Federal Functional Classification

A roadway's functional classification indicates its character and the traffic service it provides. The functional classifications used on highways, from highest to lowest classification, are Interstate, principal arterial, minor arterial, and collector. The higher functional classes give more priority to through traffic and less to local access. Within the study limits of this *RDP*, SR 129 is classified as **Rural Minor Arterial** (R2) from MP 0.0 to MP 38.59, and as **Urban Minor Arterial** (U2) from MP 38.59 to MP 39.92[10].

[10] WSDOT TRIPS State Highway Log

National Highway System

The National Highway System (NHS) is an interconnected system of principal arterial routes that serves interstate and interregional travel, meets national defense requirements, and serves major travel destinations. SR 129 is **not included** in the National Highway System.

Highways of State-wide Significance

The Highways of State-wide Significance (HSS) include highways, arterials, and ferry routes that connect major communities across the state and support the state's economy. State highways not classified as HSS facilities are referred to as Regionally Significant State Highways, or "non-HSS" facilities. SR 129 is a **non-HSS** facility.

Scenic and Recreational Highway System

The Scenic and Recreational Highways Act of 1967 established the Scenic and Recreational Highways Program in response to the national interest in the highway beautification movement.

Federal funding is available to recognized Scenic and Recreational highways to develop the scenic byway programs and to accomplish corridor planning for maintaining the intrinsic qualities of the corridor.

This corridor of SR 129 has been designated by WSDOT as one of Washington State's **Scenic and Recreational Highways**[11].

View of Grande Ronde River from SR 129

[11] WSDOT Heritage Corridors Program

Freight and Goods Transportation System

The transportation commission, in cooperation with cities, counties, and regional transportation planning organizations, designated the Freight and Goods Transportation System (FGTS). Routes are classified by total tonnage of freight carried each year with the designations shown below:

- *T-1:* Over 10 million tons
- *T-2:* 4 million to 10 million tons
- *T-3:* 300,000 to 4 million tons
- *T-4:* 100,000 to 300,000 tons
- *T-5:* Over 20,000 in 60 days

This SR 129 section is presently identified as a **"T-3"** route in the Statewide FGTS, with approximately 300,000 to 4 million freight tons transported annually[12]. Major commodities transported on this route include lumber and grain products.

Access Control Classification

Access management is a technique for protecting the capacity of highways and improving safety. Disruptions to "through traffic" are minimized, by eliminating unnecessary driveways or spacing them apart, managing the roadway median, spacing traffic signals, and managing turning traffic.

Typical characteristics of access management classifications for multilane facilities are:

- *Class 1*: High speeds and volumes, long trips, serving interstate, interregional, and intercity travel. Service to abutting land subordinate to service of major traffic movements. One mile intersection spacing, minimum private connection spacing at 1320 feet, or one per parcel. Restrictive where multi-lane is warranted.

- *Class 2*: Medium to high speeds and volumes, medium to long trips, serving interregional, intercity, and intra-city travel. Service to abutting land subordinate to service of traffic movement. Restricted to intersections spaced one-half a mile apart, minimum private connection spacing at 660 feet, or one per parcel. Restrictive where multi-lane is warranted.

- *Class 3*: Moderate speeds and volumes, short trips, balance between land access and mobility, serving intercity, intra-city and intercommunity travel. Used where land use is less than maximum build-out, but development potential is high. Restricted to intersections spaced one-half a mile apart, less with signal progression analysis, and minimum private connection spacing at 330 feet.

[12] WSDOT FGTS Classification Map, 1998; 1996 Traffic Report; and Eastern Washington Intermodal Transportation Study.

- *Class 4:* Moderate speeds and volumes, short trips, balance between land access and mobility, serving intercity, intra-city and intercommunity travel. Used where land use is less than maximum build-out, but development potential is high. Restricted to intersections spaced one-half a mile apart, less with signal progression analysis, and minimum private connection spacing at 250 feet.

- *Class 5:* Low to moderate speeds, moderate to high volumes, short trips serving intra-city and intercommunity travel. Service to land access dominant function. One quarter mile intersection spacing, less with signal progression analysis, and minimum private connection spacing at 125 feet.

The access classifications for SR 129 are shown in Table 2-5.

TABLE 2-5 SR 129 Access Classifications[13]

Segment Mile Posts	Description Of Segment	Access Classif.
MP 0.00–MP 35.73	Oregon State Line to Fairgrounds Rd.	Class 2
MP 35.73–MP 36.95	Fairgrounds Rd. to north of Asotin	Class 5
MP 36.95–MP 38.60	North of Asotin to Critchfield Rd.	Class 3
MP 38.60–MP 41.17	Critchfield Rd. to south of Clarkston	Class 4

[13] South Central Region Access Management Guidebook

Lanes and Shoulders

SR 129 is a two lane undivided highway. Lane widths vary in places from 9 feet to 12 feet, with the majority of the section being 11 feet wide.

The roadway surface is bituminous surface treatment (BST) from the Oregon border (MP 0.00) to Asotin's 2nd Street (MP 36.22). The roadway surface changes from BST to asphalt concrete pavement (ACP) at Asotin's 2nd Street (MP 36.22).

Shoulder widths on both sides of the roadway are predominately 3 feet wide. Some areas have two foot or less of paved shoulder. The shoulder surfaces are primarily a combination of bituminous and gravel surfacing.

There are two southbound slow vehicle turnouts south of Asotin where the highway climbs up from the Snake River valley to the Palouse tableland (MP 33.62 to MP 33.76 and MP 34.94 to MP 35.01).

The specific locations of these features are shown on strip maps in Chapter Nine.

Horizontal and Vertical Alignment

Horizontal and vertical alignments are the primary controlling elements for highway design. In the early stages of a roadway's design, these two elements are coordinated with design speed, drainage, intersection design, and aesthetics.

The *desirable* minimum horizontal curve radii length is between 1,500 and 5,000 feet. Modified design level standards allow for horizontal curves on the SR 129 route to be between 375 feet and 5,000 feet, depending on the design speed of the individual curve. The *desirable* length of a vertical curve is two to three times the length required for stopping sight distance.

Several curves within this route do not meet minimum Modified Design Level standards. The highway designer or project scoper should consider the existing environmental and geometric constraints associated with these curves as well as perform Benefit/Cost analyses to determine whether these curves can be addressed. If the curves cannot be brought up to the appropriate design standard, design deviations should be sought.

Bridges and Structures

This section of SR 129 includes two bridges as indicated in Table 3-2. Further information regarding these bridges is displayed on strip maps in Chapter Nine.

TABLE 3-2 Bridges and Structures

Bridge Name	MP	Length	Width	Preservation Status
129/002 – Grande Ronde River	4.33	316.8 feet	24 feet	No Programmed Improvements in HSP (Painting needed during 2006-2008 period)
129/010 – Asotin Creek	36.62	105.6 feet	26 feet	No Programmed Improvements in HSP

Grande Ronde River Bridge

Asotin Creek Bridge

Intersections and Traffic Control

SR 129 provides local roadway connections to one state highway, twenty-six county roads and sixteen city roads. Additional local access is provided to driveways. Details regarding intersection locations are provided in Chapter Nine.

A two-way left turn lane begins at MP 39.71 on SR 129, continues past the north study area limits. Critchfield Road (MP 38.60) and 13th St. (MP 39.20) have left-turn pockets for northbound traffic, and right turn pockets for southbound traffic. Sixty-two percent of the full length of this route is striped as a *No Passing* Zone (further information on *No Passing Zones* is included in Table 4-2, SR 129 LOS Analysis Elements).

The traffic control features on this route include curve warning signs with recommended

reduced speeds and one stop sign (see Table 3-3). This route does not have any yield signs or traffic signals.

TABLE 3-3 SR 129 Traffic Control Features

Mile Post(s)	Travel Direction	Type of Feature[14]
36.28	Southbound	Stop sign from SR 129 to Asotin's Washington St.
0.38, 0.75, 5.69, 5.88, 6.86 0.53, 1.01, 5.84, 7.00	Northbound Southbound	20 MPH curve warning signs
0.01, 32.31, 33.87 1.11, 13.21, 25.65, 33.52, 35.48, 36.12	Northbound Southbound	25 MPH curve warning signs
4.13, 5.08 4.44, 5.22	Northbound Southbound	30 MPH curve warning signs
1.08, 24.98, 25.39 3.89, 25.20	Northbound Southbound	35 MPH curve warning signs
13.32, 23.1813.53, 23.57	Northbound Southbound	40 MPH curve warning signs
13.81, 21.40	Southbound	45 MPH curve warning signs

Terrain

This section of SR 129 runs parallel with Buford Creek from MP 0.00 to MP 4.00, Rattlesnake Creek from MP 4.33 to MP 13.42 and the Snake River from MP 36.95 to 39.92. It also travels through three different types of terrain as indicated in Table 3-4.

TABLE 3-4 SR 129 Terrain

Segment Mile Posts	Description Of Segment	Terrain[15]
MP 0.00–MP 14.98	Oregon border to Smyth Rd.	Mountainous
MP 14.98–MP 31.00	Smyth Rd. to north of Hostetler Rd.	Rolling
MP 31.00–MP 35.69	north of Hostetler Rd. to Asotin	Mountainous
MP 35.69–MP 36.22	Asotin to 2nd St.	Rolling
MP 36.22-MP 39.92	2nd St. to 24th Ave.	Level

[14] WSDOT SR View Program
[15] WSDOT TRIPS System State Highway Log, 4/26/00

Roadside Character

The roadside character is the user's perspective of the landscape from the pavement edge to the right-of-way boundaries. It describes what you see as you travel along the road. The classification of a facility's roadside character - whether it be Forest, Open, Rural, Semi-urban, or Urban - is defined in the *WSDOT Roadside Classification Plan, 1996.*

SR 129 at Smyth Road - Open Roadside Character

The goals of the Roadside Classification Plan are to:

- Promote transportation safety and management efficiency.
- Minimize environmental and social impacts of transportation facility construction and maintenance.
- Facilitate protection and restoration of Washington's natural environment and cultural heritage within state highway roadsides.
- Promote cooperation and communication in roadside management.

The roadside classifications for the SR 129 corridor are shown in Table 3-5.

TABLE 3-5 SR 129 Roadside Classification		
Segment Mile Posts	Description Of Segment	Roadside Classification[16]
0.00 - 15.60	Oregon border to S. of Montgomery Rd.	Open
15.60 - 35.70	S. of Montgomery Rd. to Asotin	Rural
35.70 - 36.70	Asotin to N. of City St. (Asotin)	Urban-Asotin
36.70 - 39.00	N. of City St. (Asotin) to 39 Rd.	Rural
39.00 - 39.92	39 Rd. to 24th Ave. (Clarkston)	Semiurban-Clarkston

Right of Way

The right of way widths along SR 129 vary greatly, but are generally 30 to 60 feet wide on both the left and right side of the roadway's centerline. The right of way maps and deeds should be consulted for the exact widths.

[16] WSDOT Roadside Classification Plan, 1996

Safety Needs

Safety data is provided to the WSDOT by the Washington State Patrol (WSP) and recorded in the *TRIPS Standard Accident History Detail Report*. WSDOT evaluates the data to determine locations and corridors with high pedestrian accidents, high accident locations and corridors, and high risks. The data is then classified using the following categories:

- *Pedestrian Accident Location (PAL*) is the designation given to a highway section typically less than 0.25 miles where a two year analysis of pedestrian accident history indicates that the section has a significantly higher than average accident and severity rate.

- *High Accident Location (HAL*) is the designation given to a highway section typically less than 0.25 miles where a two year analysis of collision history indicates that the section has a significantly higher than average collision and severity rate.

- *High Accident Corridor (HAC)* is the designation given to a highway corridor (one mile or greater in length) where a five-year analysis of collision history indicates that the section has higher than average collision and severity factors.

- *Risk* is the designation given to a highway location where geometrics, traffic volumes, and speed limits indicate a high probability of run-off-the-road accidents.

This section of SR 129 did not include any *PAL's, HAL's, HAC's, or RISK* for the most recent analysis period. The WSDOT Program Manager should be contacted for an updated list of PAL's, HAL's, HAC's, and RISK when improvement strategies are designed. WSDOT has programmed safety improvements on SR 129 that include replacing guardrail between MP 0.00 and MP 22.82. This includes retrofitting the bridge rail for the Grande Ronde River crossing at MP 4.33.

Level of Service Analysis

The Level of Service (LOS) analysis evaluates the operational conditions within a traffic stream on a roadway. Factors used to determine the level of service include daily traffic volumes, truck percentage, peak hour traffic, and the directional factor. LOS A is the highest level of traffic operations and is characterized by virtual free flowing traffic. The levels are scaled down so that LOS E represents flows that approximate capacity, and LOS F characterizes vehicle volumes on the roadway exceeding capacity. For LOS F conditions, flow is sporadic and occasionally completely stopped.

A LOS analysis of SR 129 was conducted to estimate its current and future operational conditions. The information used in this analysis is described in the sections below and the

specific data is included in Table 4-2 and related to specific locations in a strip map format in Chapter Eight. Further information regarding the analysis methodology can be found in the Transportation Research Board's Highway Capacity Manual.

Daily Traffic Volumes

The number of vehicles that pass a given point in both directions during a specific period of time is recorded to determine Annual Average Daily Traffic Volume[17] (AADT). The traffic counts are adjusted using various factors such as seasonal, axle, and historical counts for the previous four years.

Truck Volumes (T-Factor)

The volume of truck traffic, which also includes large recreational vehicle traffic, using the SR 129 section is displayed as a percentage of truck traffic as compared to total traffic during the peak hour, which is referred to as the T-Factor[18]. The peak hour period is defined as the maximum hourly traffic during the day from actual counts.

K-Factor

The K-factor is defined as the percentage of the annual average daily volume occurring in the peak hour. The peak hour is the highest volume hour for the twenty-four hour period.

Peak Hour Factor

The peak hour factor is a measure of traffic demand fluctuation within the peak hour. The hourly volume during the peak hour is divided by four times the peak 15-minute flow during the peak hour.

Directional Factor (D-Factor)

The percent of traffic volume in the SR 129 route during the peak hour period in the peak direction, as compared to the total daily traffic volume, is the directional factor or D-Factor[19] (%D). The directional factor is also referred to as the peak hour split percent. The peak hour is defined as the maximum hourly traffic during the day from actual counts.

Growth Factors

WSDOT evaluates traffic growth throughout the state and assigns an annual compound growth factor[20] for roads by functional classification for each of the state's counties. The compound annual growth factor for Rural Minor Arterials is 1.018 and for Urban Minor Arterials is 1.014.

[17] WSDOT TRIPS Traffic Count History
[18] WSDOT TRIPS Traffic Count History
[19] WSDOT TRIPS Traffic Count History
[20] WSDOT's Compound Growth Factor Chart, Transportation Data Office

TABLE 4-2 SR 129 LOS Analysis Elements

MP's	Vicinity	% TRK (&RV)	% K	% D	% Growth	Peak Hour Factor	% No Pass	Est. 2001 AADT	Est. 2021 AADT
0.00-4.39	Oregon border – Grande Ronde Br.	25.0%	11.8%	56.3%	1.018%	0.83	90%	425	578
4.39-13.38	Rattlesnake Grade (Grande Ronde Bridge – Fields Spring State Park)	25.0%	11.9%	56.3%	1.018%	0.83	90%	438	596
13.38-16.25	Fields Spring State Park – Anatone	17.4%	8.7%	52.2%	1.018%	0.83	61.1%	559	760
16.25-17.71	Anatone (south of Anatone – north of Anatone)	17.4%	8.7%	52.2%	1.018%	0.83	20.6%	559	760
17.71-32.61	Plateau (north of Anatone – north end of plateau)	18.9%	10.0%	51.4%	1.018%	0.83	21.5%	723	983
32.61 – 35.69	Grade to Asotin (north end of plateau – Asotin City Limits)	18.9%	10.0%	51.4%	1.018%	0.83	41.1%	723	983
35.69-36.22	South Asotin (Asotin City Limits – 2nd St.)	20.3%	10.5%	60.9%	1.018%	0.83	87.7%	662	900
36.22-36.62	North Asotin (2nd Street – Asotin Cr. Br.)	11.8%	9.7%	52.6%	1.018%	0.90/ 0.91	90%	3,054	4,153
36.62-39.57	Between Asotin & Clarkston (Asotin Cr. Br. – Post Ln.)	3.5%	9.1%	59.6%	1.018%	0.92/ 0.93	45.5%	5,803	7,892
39.57-39.92	South of Clarkston (Post Ln. - 24th Ave.)	6.0%	9.0%	61.1%	1.014%	0.92	50%	6,043	7,736

Analysis Results

The 1985 Highway Capacity Software for Two-Lane Highways was used for performing the Level of Service (LOS) analysis for this *RDP*. The LOS analysis results are presented in Table 4-3. The analysis shows that the SR 129 route will have an acceptable congestion level throughout the twenty-year planning period. WSDOT strives to maintain a LOS C on rural highways and a LOS D in urban areas.

TABLE 4-3 SR 129 LOS Analysis Results

MP's	Vicinity	2001 LOS	2021 LOS
0.00-4.39	Oregon border – Grande Ronde Br.	**B**	**B**
4.39-13.38	Rattlesnake Grade (Grande Ronde Bridge – Fields Spring State Park)	**C**	**C**
13.38-16.25	Rd widening (State Park – S. of Anatone)	**B**	**B**
16.25-17.71	Anatone (S. of Anatone – N. of Anatone)	**A**	**A**
17.71-32.61	Plateau (N. of Anatone – N. end of plateau)	**A**	**A**
32.61-35.69	Grade to Asotin (N. end of plateau – Asotin City Limits)	**B**	**B**
35.69-36.22	South Asotin (Asotin City Limits – 2nd St.)	**B**	**B**
36.22-36.62	North Asotin (2nd Street – Asotin Cr. Br.)	**B**	**C**
36.62-39.57	Between Asotin & Clarkston (Asotin Cr. Br. – Post Ln.)	**C**	**C**
39.57-39.92	South of Clarkston (Post Ln. - 24th Ave.)	**C**	**C**

RDP Standards

This section of SR 129 poses a great challenge to highway designers due to the mountainous terrain limitations, environmentally sensitive areas along Rattlesnake Creek, and potential wetland areas along the Snake River border. Due to the numerous geometric and environmental constraints associated with this section of SR 129, the South Central Region is recommending that any improvement work done on this section of SR 129 be designed to **Modified Design Level standards** with lanes a minimum of eleven feet wide and paved shoulders a minimum of three feet wide.

SR 129 overlooking Rattlesnake Creek

Route Improvements and Estimate Summary

Proposed route improvements that support access improvement solutions, economic vitality, economic initiatives, and safety requirements for the SR 129 route during the next 20 years are listed in Table 5-1. There were no Environmental retrofit strategies or multi-modal improvements identified for this section of the SR 129 route in the 2003-2022 HSP. The designer should seek the most current update of the HSP to identify any improvements or deficiencies that may have been included in subsequent updates.

It is important to note that these improvements are conceptual planning solutions and their project scopes will be refined once they reach the programming and design level phases.

TABLE 5-1 Route Improvement Solutions ***(2003-2022 HSP)***

Solution Number	MP's	Vicinity	Type of Solution	Solution	Included In:	Estimated Cost (Millions)
1	36.62-39.57	Cleveland St.-Post Ln.	Economic Vitality	Widen to 3 lanes where feasible	**2003-2022 HSP**	$14.79 to $20.01
2	0.00-42.60	Oregon border to Clarkston	Economic Initiatives	Develop a Scenic & Rec. Corridor Management Plan	**2003-2022 HSP**	$0.21 to $0.29
3	35.73-36.57	Asotin to Clarkston	Economic Vitality and Access Improvements	Feasibility study to re-route SR129 in Asotin (Cleveland Street by-pass/one-way couplet)	**RDP Public Comments**	Unknown
4	0.00-22.82	Oregon border to Onstot Rd.	Safety	Replace guardrail and retrofit bridge rail at Grande Ronde River Crossing	**2002-2007 STIP/TIP**	Unknown
5	0.00-13.75	Oregon border to Park Rd.	Safety	Widen shoulders at strategic locations for vehicles to pull off	**RDP Public Comments**	Unknown

The route improvement solutions in Table 5-1 support the *Highway System Plan's (2022 HSP)* goals, objectives and action strategies that are described below in Table 5-2:

TABLE 5-2 *HSP* Goals, Objectives, and Action Strategies

Solution Number	Goal	Objective	Action Strategy
1	**12**: Transportation supports general economic prosperity.	**18**: Support statewide economic development through targeted transportation investments.	**397**: Construct State Highway transportation improvements that: solve transportation traffic flow or access deficiencies on a State Highway; and support targeted economic development of new or existing basic industries and /or regional economic development, including regional tourism, within the corridor
2	**13:** Recreational travelers have convenient and inviting access to tourist destinations.	**21**: Improve the quality of tourists' related travel experiences in Washington.	**213**: In partnership, provide support to develop and implement Corridor Management Plans and projects on designated scenic byways to interpret, enhance and access heritage resources.

Stakeholder Involvement

This *RDP* was created with the help of an internal Stakeholder Steering Committee including representation from **Project Development, Planning, Program Management, Construction, Real Estate Services, Materials, Maintenance, Environmental, and the Regional Administrator.**

External Stakeholders were involved in the development of this *RDP* early in the planning process. The **Palouse RTPO**, including representation from the **cities and towns throughout Asotin, Columbia and Garfield counties**, discussed the progress of this project at their monthly meetings. This *RDP* was presented to the RTPO member agencies and the **Washington State Parks and Recreation** for their review, comment, and verification of consistency with the RTPO Transportation Plans and local comprehensive plans.

The *RDP* was also presented to the **general public** and **local business owners** at an open house on December 10, 2001, for public input and comments on the plan. WSDOT responded to each of the public comments on the *RDP* and has incorporated the request to widen shoulders at strategic locations to allow vehicles to pull off SR 129, as well as to further investigate a bypass option between Asotin and Clarkston when funds become available.

The RDP will be updated periodically to keep pace with changing transportation needs and existing conditions. It is important to keep the Stakeholders involved during future updates of this *RDP* and as improvement solutions are being implemented.

Consistency with Other Plans

Development of this *RDP* is consistent with local plans of jurisdictions that the SR 129 route travels through. These plans include the Asotin County Comprehensive Plan and Zoning Ordinance, the Palouse RTPO Regional Transportation Plan, and the South Central Region's detailed plan for the segment of SR 129 from 24th Avenue to its intersection with US 12 (MP 39.92 - MP 42.55).

RDP Data Sheets

Detailed presentations of the elements described in the preceding chapters are displayed on the data sheets shown on the following pages.

Appendix A Glossary

Abbreviations

ACP	Asphalt Concrete Pavement
BST	Bituminous Surface Treatment
CMP	Corridor Management Plan
HSP	Highway System Plan, WSDOT
MPH	Miles Per Hour
OSC	Olympia Service Center, WSDOT
PRTPO	Palouse Regional Transportation Planning Organization
SCR	South Central Region, WSDOT
S&R	Scenic & Recreational
SWR	Southwest Region, WSDOT
SR	State Route
STIP	Statewide Transportation Improvement Program
TRIPS	Transportation Information and Planning Support
WSDOT	Washington State Department of Transportation

Definitions

Access Control

Access control is established to preserve the safety and efficiency of specific highways and to preserve the public investment. Control of access is affected by acquiring rights of access from abutting property owners, and by selectively limiting approaches to the highways.

Annual Average Daily Traffic (AADT)

AADT is the total traffic volume (both directions), over a highway segment during a one-year period, divided by the number of days in the year.

Directional Factor (%D)

The Directional Factor, or peak hour split, is the percent of the maximum hourly traffic volume traveling in the heaviest direction of flow.

Freight and Goods Transportation System (FGTS)

The FGTS is a statewide network and classification system of state, county and city routes that transport freight within the state. The FGTS connects to freight routes in adjoining states and the Province of British Columbia. Routes are classified by total tonnage of freight carried each year.

Functional Classification System

The functional classification system is a federal designation indicating the traffic service provided by the route (mobility vs. access).

High Accident Corridor (HAC)

A highway section one mile or greater in length where a five-year analysis of collision history indicates that the section has higher than average collision and severity factors.

High Accident Location (HAL)

A highway section typically less than 0.25 of a mile with a two year analysis of collision history indicating that the section has a significantly higher than average collision and severity rate.

Highway System Plan (HSP)

The Highway System Plan is the state highway element of Washington's Transportation Plan. The Highway System Plan forms the basis for development of future state highway programs, projects, and budgets. The plan defines service objectives and proposes strategies for maintaining, preserving, and improving state highways.

K-Factor (%K)

The K-factor is the portion of the average daily traffic volume occurring during the peak hour, expressed as a percentage.

Level of Service (LOS)

Level of Service is a qualitative measure describing the operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.

Metropolitan Planning Organization (MPO)

The agency designated by the Governor to administer the federally required transportation planning process in a metropolitan area. An MPO must be in place in every urbanized area over 50,000 in population. The MPO is responsible for the 20-year long-range plan and the Transportation Improvement Program.

Mile Post (MP)

The Mile Post is the state highway mile designation, beginning with zero on the southern terminus of a north/south route (odd numbered routes) and the western terminus of an east/west route (even numbered routes).

National Highway System (NHS)

The National Highway System is an interconnected system of principle arterials designated by Congress. The system serves interstate and regional travel; meets national defense requirements; and serves major population centers, international border crossings, ports, airports, public transportation facilities, and other major travel destinations. The NHS includes all interstate routes, a large percentage of urban and rural principal arterials, and strategic highways and connectors.

Pedestrian Accident Location (PAL)

A highway section typically less than 0.25 of a mile with a two year analysis of pedestrian accident history indicating that the section has a significantly higher than average accident and severity rate.

Planned limited access partial control

The designation for sections of highways where implementation of access control is planned, but no specific plans for acquisition of access control have been approved.

Regional Transportation Planning Organizations (RTPO)

RTPOs were authorized by the Growth Management Act of 1990. They are voluntary organizations with representatives from state and local governments to coordinate transportation planning activities within a region. MPOs also function as a regional transportation planning organization.

Risk

RISK locations are areas where roadway geometrics, traffic volumes, and other factors indicate a high probability of run-off-the-road accidents.

Roadside Character

The general character of the roadside landscape, assessed according to the roadway user's visual perspective. Roadside character is the basis for roadside character classification.

Route Development Plan (RDP)

A long-range plan for a specific highway corridor that describes existing highway conditions, local land use plans, and recommends improvements and goals for future improvements and transportation services. The plan is developed through cooperative efforts with affected city, county and regional agencies.

Section

The study limits of State Route 129 are between MP 0.00 to MP 39.92.

T-Factor

The T-Factor is the percentage of truck traffic as compared to total traffic during the peak hour, which is referred to as the T-Factor. The peak hour period is defined as the maximum hourly traffic during the day from actual counts.

Statewide Transportation Improvement Program (STIP)

The STIP is a three-year, fiscally constrained and prioritized program of transportation projects, compiled from local and regional plans, along with the Washington Transportation System Plan, which provides a backbone for developing projects for the intermodal transportation network in the State of Washington. WSDOT is limited by statute to a two-year capital construction program, therefore an investment level approach has been used for the third year of the STIP. The investment level is based upon the planned amount of funding for the various programs.

Appendix B Land Use Zones

Agricultural

This district is intended to protect and preserve the character of existing aglands with a minimal amount of development; only allowing land uses which are compatible with the established pattern including the development of low-density residential and commercial uses which support agriculture. It is not intended to allow other land uses of a commercial or industrial nature, which have the potential to erode the agriculture character of the district. It is intended that those portions of the County containing prime agricultural soils will be preserved for agricultural enterprises.

Agricultural/Transition

This district is intended to accommodate the existing land uses, which are predominately agricultural while recognizing that the zone is likely to transition into a low-density residential area that will be provided with typical urban services and infrastructure. As change and growth occurs, new land uses within this district are intended to be compatible with this development pattern. The requirements and standards applicable to this zone are intended to provide for the safe and efficient use of the property.

Low/Medium Density

This district is intended to accommodate land uses, which are predominately low or medium density residential in nature. The medium density development will be allowed only where sufficient infrastructure exists to accommodate such. It is not intended to allow other land uses of a commercial or industrial nature in this district, which have the potential to create conflicts and incompatibilities. The requirements and standards applicable to this zone are intended to provide for the safe and efficient use of the property.

Rural Residential

This district is intended to protect and preserve the character of existing aglands with minimal amount of low-density residential development; only allowing such land uses which are compatible with the established pattern. This district is intended to accommodate land uses, which are primarily agricultural with very low density residential in a rural setting that will not be provided with typical urban services and infrastructure. It is not intended to allow other uses of a higher density residential, commercial or industrial nature, which have the potential to create conflicts. The requirements and standards applicable to this zone are intended to provide for the safe and efficient use of the property.

Recreation & Open Space

This district is intended to accommodate land uses that are primarily recreational in nature and/or open space. It is not intended to allow other land uses of a residential, commercial or industrial nature, which have the potential to erode the recreational and open space character of the district.

Appendix C Design Matrix

Following is the Design Matrix that was used to evaluate the study area.

Major Environmentally Sensitive Areas

The following photographs show some of the major environmentally sensitive areas that are typical to this section of SR 129. When route improvements are being scoped or designed, the South Central Region's Environmental Office should be contacted for a more thorough and updated environmental assessment.

1 Pipe and fish structure at Buford Creek
MP 0.9

2 Fishing access at Grande Ronde River
MP 4.3

3 Pipe at Rattlesnake Creek crossing
MP 5.78

4 Twin pipes at Critchfield Road,
settlement hole needs spring cleaning
MP 38.6

5 Swallows Rock view in the distance
MP 38.8

Major Maintenance Concern Areas

The following photographs show areas within the RDP study area that require a high level of maintenance by the South Central Maintenance Office. When route improvements are being scoped or designed, the South Central Region's Maintenance Office should be contacted for a more thorough and updated assessment.

1 View of pond and slide above SR 129
MP 1.4

2 Narrow corner
MP 6.1

3 Narrow roadway
MP 6.88

4 Narrow roadway
MP 8.0

5 Avalanche area
MP 11.8

6 Snow drifting area
MP 16.0 – 16.3